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Ex Parte

November 3, 1997

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street N.W., Room 222
Washington, D.C. 20554

RE: CC Dockets 96-45 and 97-160

Dear Mr. Caton:

Today, Jim Sichter and Pete Sywenki of Sprint, Whit Jordan of BellSouth, and Brenda Fox and the undersigned of U S WEST, met with Maryland PSC Chairman and Joint Board member Russell Frisby and Maryland and Joint Board Staff member Ann Dean to review the Benchmark Cost Proxy Model (BCPM) and the funding of universal service to high-cost areas. A copy of the materials used in this presentation are attached.

In accordance with Commission Rule 1.1206(a)(1), the original and three copies of this summary of the presentation is being filed with your office. Acknowledgment and date or receipt are requested. A copy of this submission is provided for this purpose. Please contact me if you have questions.

Sincerely

Attachments

cc: Honorable Russell Frisby
       Ms. Ann Dean

BCPM2

BCPM, Version 2

Enhancements to the

Benchmark
Cost
Proxy
Model

November 3rd, 1997

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BCPM2

What the BCPM2 Does!

- It does estimate the costs that would be incurred by an efficient local provider serving the entire market.

- It does assume state-of-the-art technology, in certain cases more advanced that what currently is used.

- It does work! The network constructed by the model functions and builds sufficient plant to reach all customers.

- The model meets the FCC criteria, mandates and guidelines for proxy models.
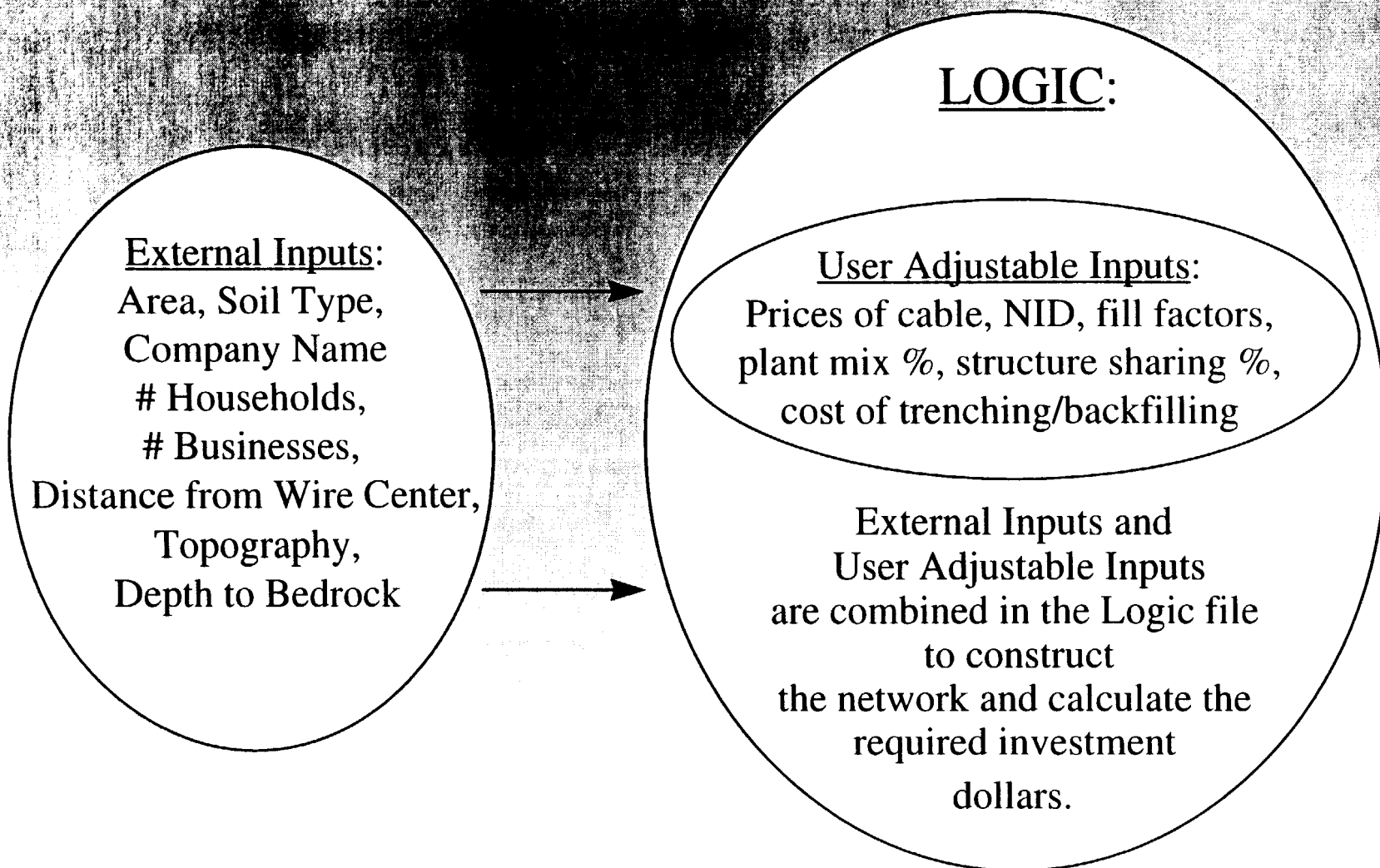
BCPM2

What the BCPM2 Doesn't Do!

- It does not reproduce the costs incurred by any existing provider.

- It does not replicate the network layout as it exists today.

- It does not (necessarily) use the same materials used in the network today.

- In its preliminary form it does not estimate the costs of unbundled network elements. (Model has been used to produce loop costs; soon to incorporate UNE modules.)

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BCPM2

LOGIC:

External Inputs:
Area, Soil Type,
Company Name
Households,
Businesses,
Distance from Wire Center,
Topography,
Depth to Bedrock

User Adjustable Inputs:
Prices of cable, NID, fill factors,
plant mix %, structure sharing %,
cost of trenching/backfilling

External Inputs and
User Adjustable Inputs
are combined in the Logic file
to construct
the network and calculate the
required investment
dollars.

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How the LOGIC file works:
User Adjustable Inputs and External Inputs are combined
in a series of If/Then statements and mathematical calculations.

These produce figures (output) on the initial investment required:
Total length of feeder,
total length of distribution.
number of lines on copper,
number of lines on small vs. large digital loop carriers
number of ducts or poles or manholes
investment dollars for buried/underground/aerial
for the specific area.

Next step is to turn investment dollars into monthly costs...

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Cap Cost & Expense Module:

User Adjustable Inputs Set #2:
return on equity, return on debt,
depreciation lives,
state/federal/other taxes
future net salvage percentages

This module produces two key sets
of information used to estimate
monthly costs: annual
charge factors and operating
expenses.

Annual
Charge Factors:
Applied to the Investment
Figures calculated earlier to
turn investment into
monthly costs.

Operating Expenses:
G&A, General Support,
Marketing.
These will become part of
monthly costs.

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Annual
Charge
Factors

Investment
Calculations
from the
LOGIC file

Operating
Expenses

REPORTS:
In this module, cost factors are applied to investment dollars.
These include depreciation, return and taxes. These are combined with
operating expense to get monthly costs. Given monthly costs,
universal service support can be calculated for a given benchmark.
All available at the wire center level, company level, state
level, CBG or GRID level.
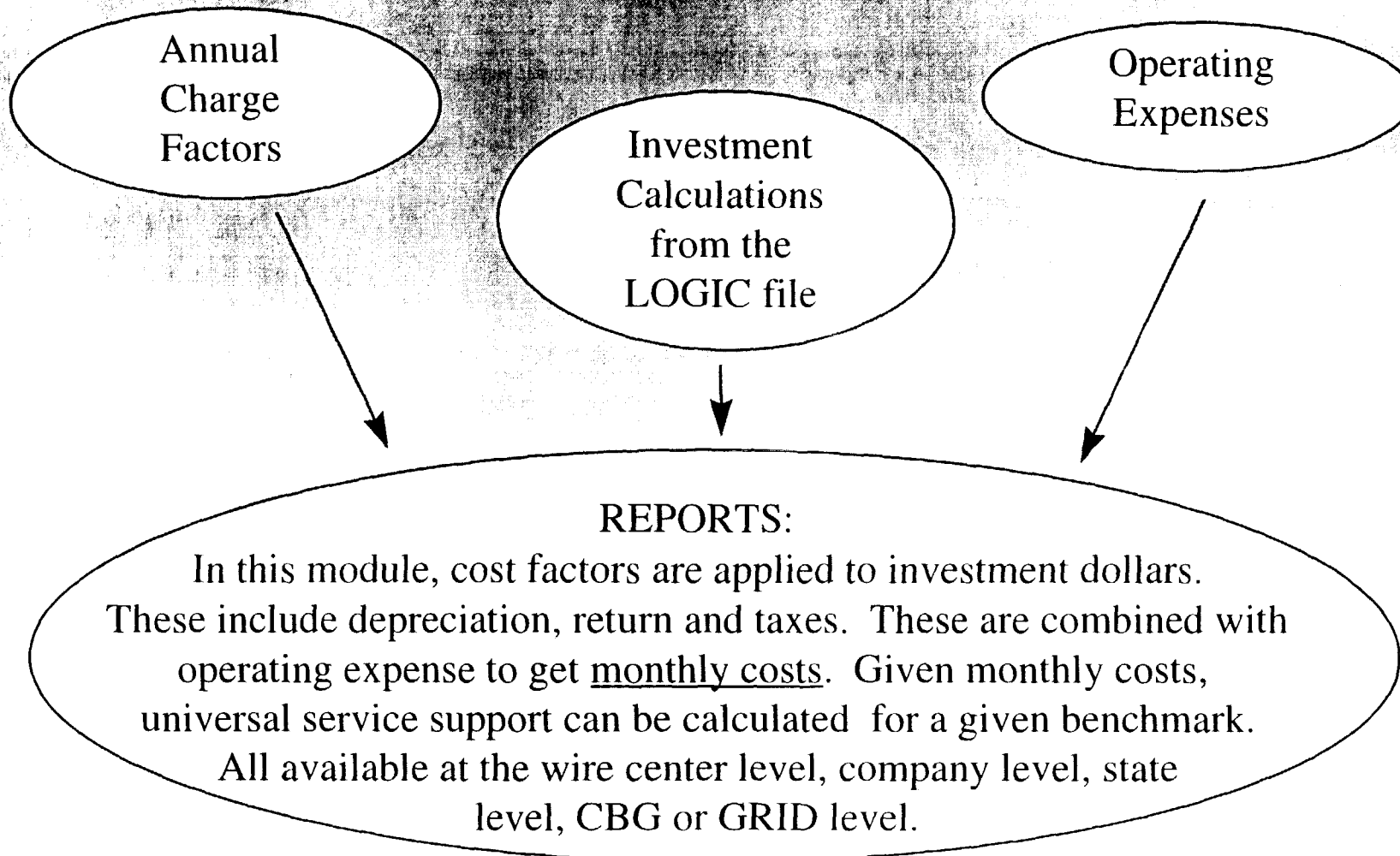
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BCPM2 Enhancements: BCPM to BCPM2- New Data Source for Wire Center Boundaries

- Because costs vary greatly within a single wire center, cost estimation must occur below the wire center level.

- Accurate wire center boundaries are the key to measuring costs accurately.

- BLR boundary information is mapped to individual census blocks allowing for greater detail of analysis.

- Hatfield 4.0 (and BCPM1.1) map only to census block group level. Result is misallocation of customers.

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Example:
Wire Center Boundary based on
Census Blocks vs. Census Block Groups

☐ Actual Wire Center Boundary

▨ Representative Hatfield / BCPM1:1 Boundary

☐ Actual Wire Center Boundary

■ BLR Boundary used in BCPM2
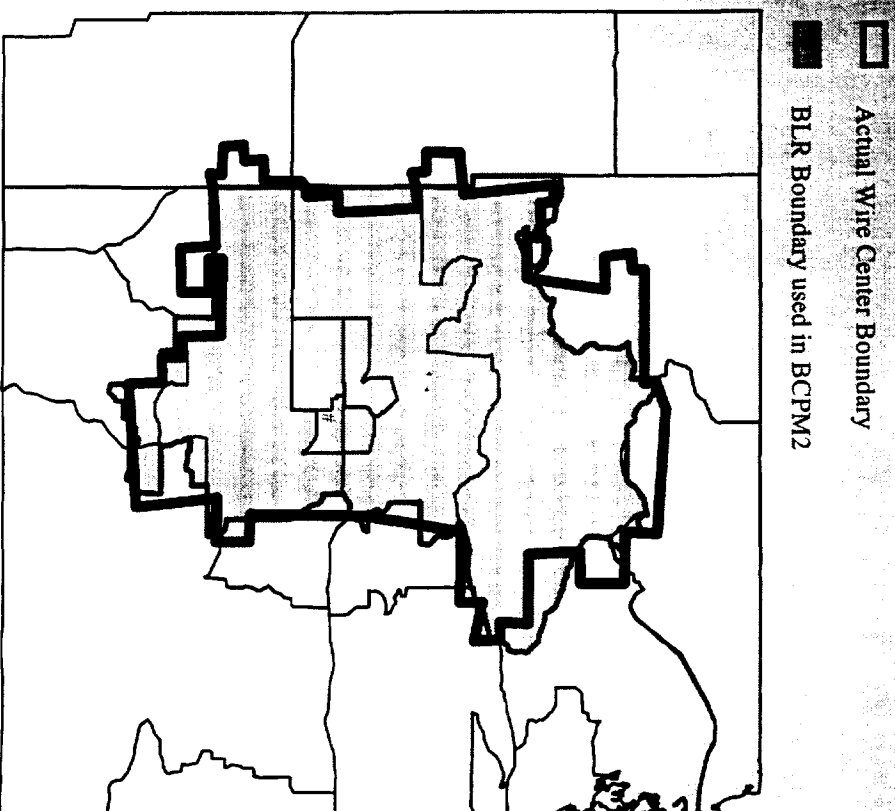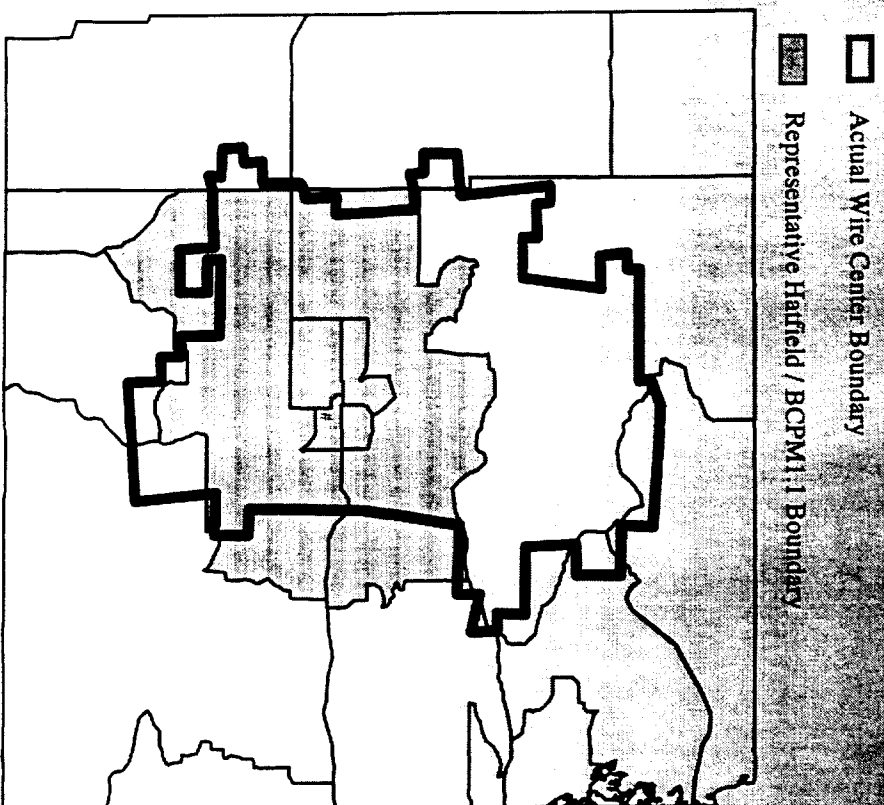
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Moving Below the CBG Level:

- Previously, entire CBG was mapped to a certain wire center and costs calculated. CBGs served by 2 or more wire centers were "assigned" only to one.

- Distance/Density key cost drivers. BOTH are distorted by mis-assignment of customers.

- Result: Access line count was inaccurate, required investment was mis-stated, inaccurate costs.

- Solution: New data source allows mapping of individual census blocks to wire centers, allowing validation of access line counts and more accurate cost estimates.

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33

14 1 9

28

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51

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BELL ATLANTIC - MARYLAND, INC - MD

ARMSTRONG TEL CO OF MARYLAND

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240150309011

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19

BELL ATLANTIC - MARYLAND, INC - MD

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7

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BCPM2

Enhancements: BCPM1.1 to BCPM2 Below the CBG Level in Rural Areas

- Previous Issue: Standard assumption for network construction was customers uniformly distributed throughout CBG. This was inappropriate for rural areas.

- Previous approach: For CBGs with density < 5 HH per sq. mile,

  -reduce total CBG area to equivalent of 500 ft. "buffer" along roads

  -assume all customers located within this new area but still uniformly distributed

  -assume new area is square, build network as before

- Problem: Did not eliminate enough vacant area, no accounting for existing clusters of rural customers.

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Enhancements:
BCPM1.1 to BCPM2
Below the Rural CBG Level (cont.)

- New Approach: Eliminate CBGs completely, Overlay the Wire Center with Grids (1/25th to 1/200th degree).

- Eliminate areas with no population and no road miles.

- Reduce grid size further to target customer location.

- Assume population is distributed along road miles (validated econometrically)

- Result: New Model builds to clusters of customers where they actually exist.

- Result: New Model eliminates building plant to unpopulated areas.
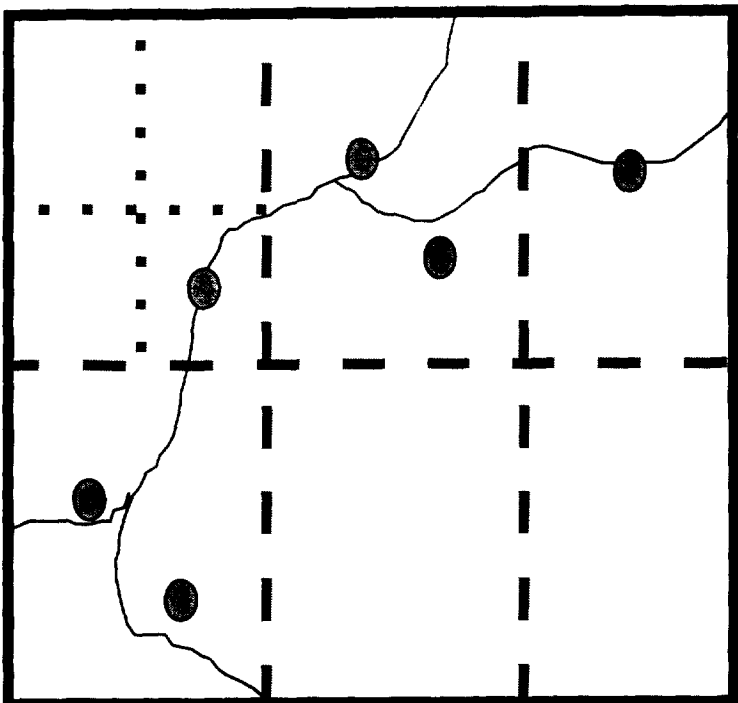
BCPM2

BCPM2

BCPM1.1

BCPM2

■ Various sized grids applied to actual wire center. Road centroid will partition each grid into quadrants.

------- New BLR Boundary

——— Grid Boundary

X   Road Centroid
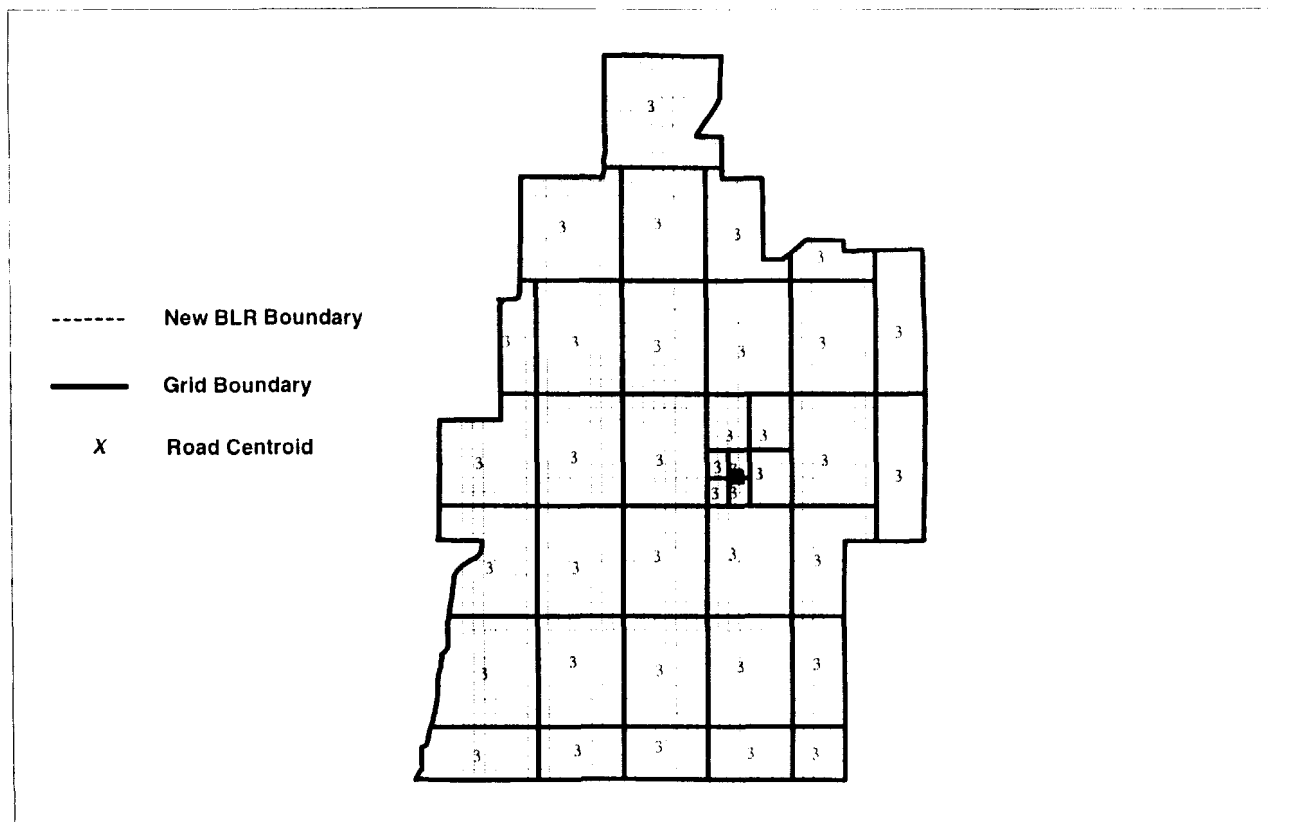
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Enhancements:
BCPM1.1 to BCPM2
Tilting the Feeder to Target Engineering
to Customer Locations

- BCPM (& Hatfield) design sets initial feeder legs at NSEW, regardless of actual CBG location.

- Issue: Not always appropriate for more distant areas where large amounts of subfeeder required. Not economically efficient.

- BCPM2 Solution: Allowing feeder routes to "tilt" targets feeder at population, minimizes sub-feeder.

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BCPM2

BCPM1.1

CBGs
Wire Center
Main Feeder
Sub-feeder

BCPM2

Grids
Wire Center
Sub-feeder
Tilted Main Feeder
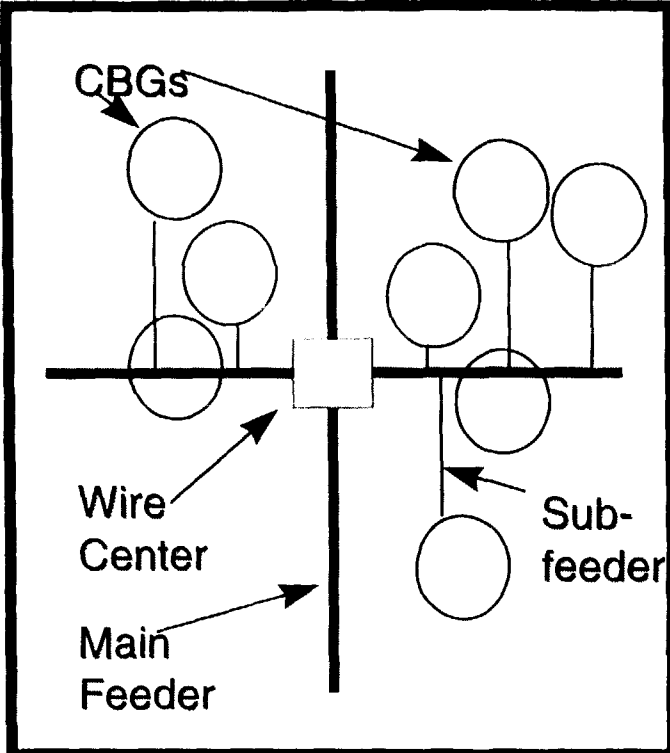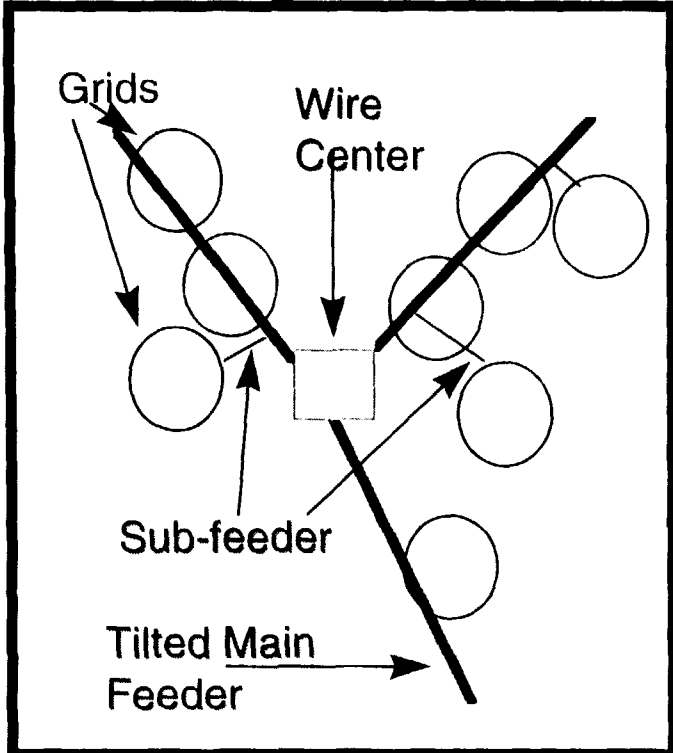
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New Distribution Engineering

Individual grid becomes new engineering area. Road centroid of grid is used to create quadrants, the area of quadrant is reduced to reflect road miles, and distribution built within this reduced area.
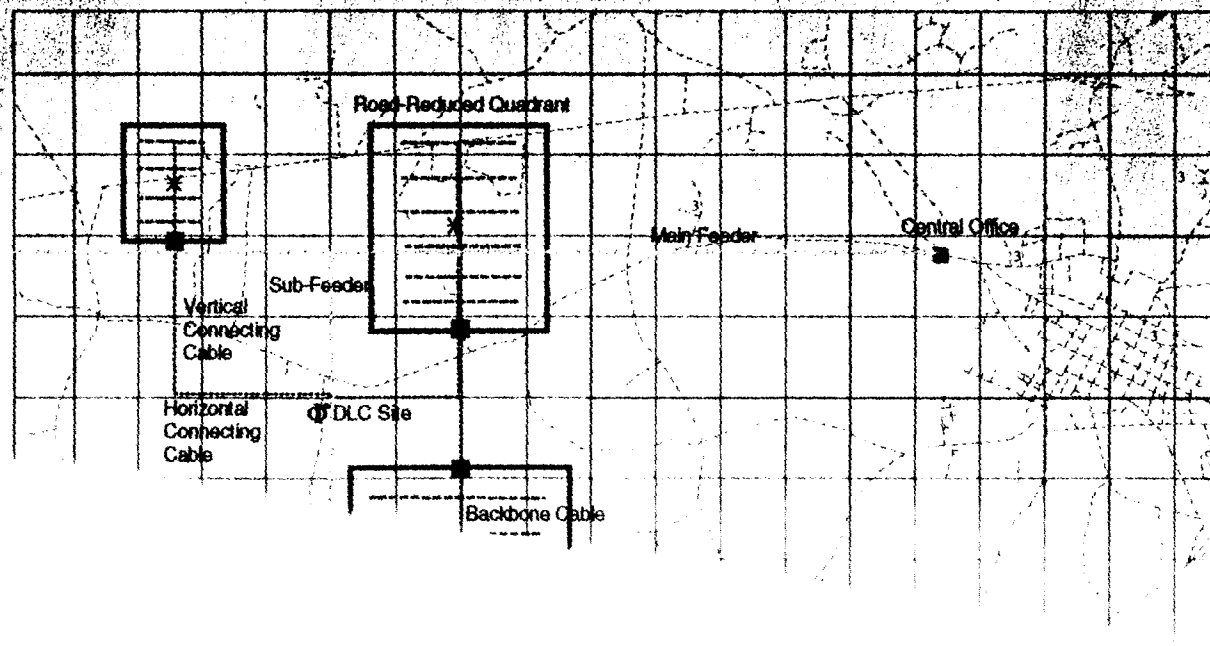
BCPM2

Tilting main feeder (creating a Y effect) in order to target feeder to actual customer locations within the wire center.
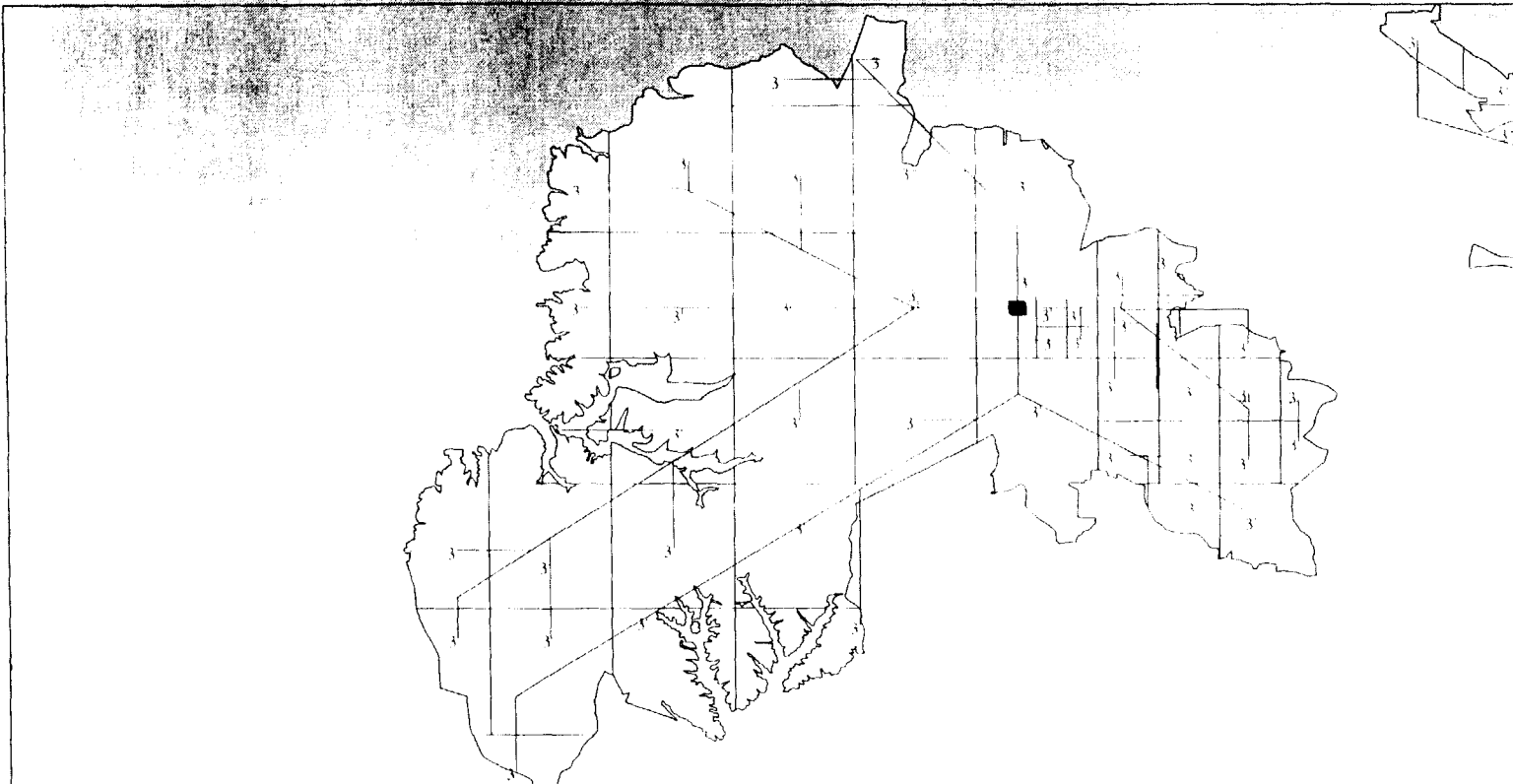
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BCPM2

Examples of Customer Location from Satellite Maps
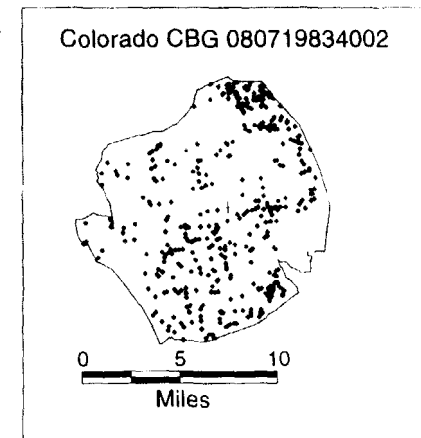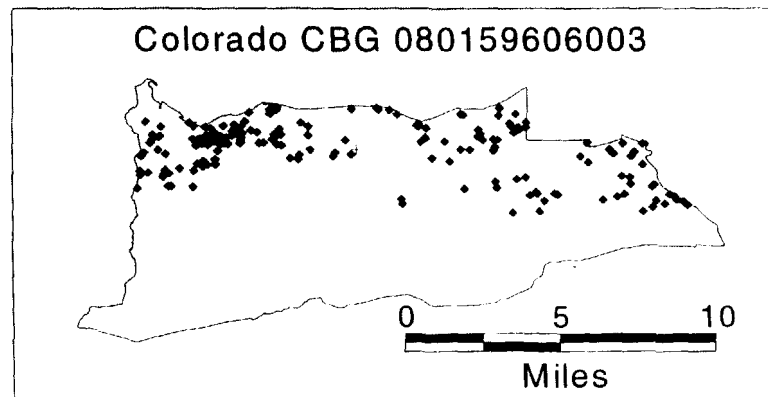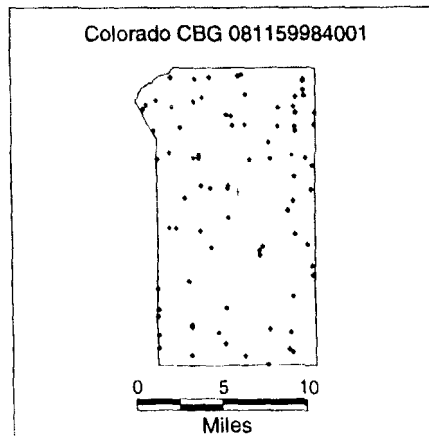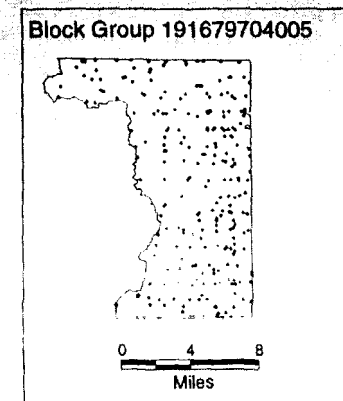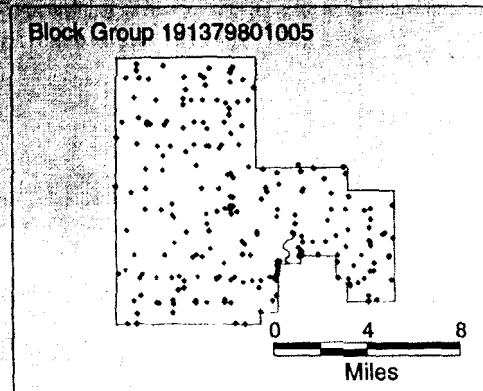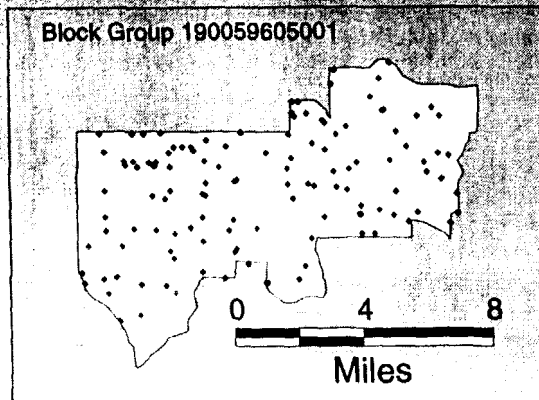
Block Group 190059605001

Block Group 191379801005

Block Group 191679704005

Colorado CBG 081159984001

Colorado CBG 080159606003

Colorado CBG 080719834002

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BCPM2

Examples of Customer Location Mapping by Models
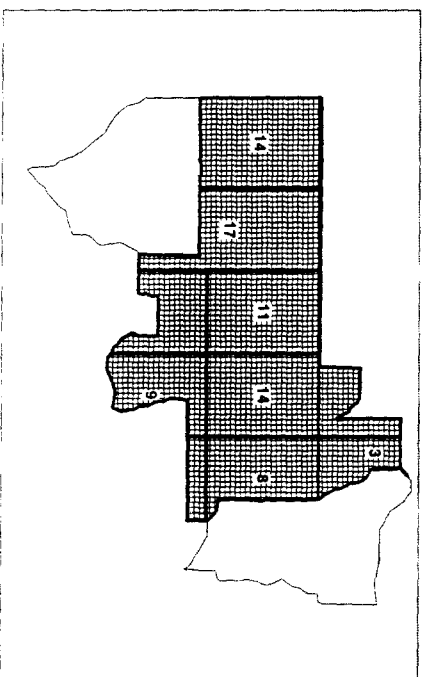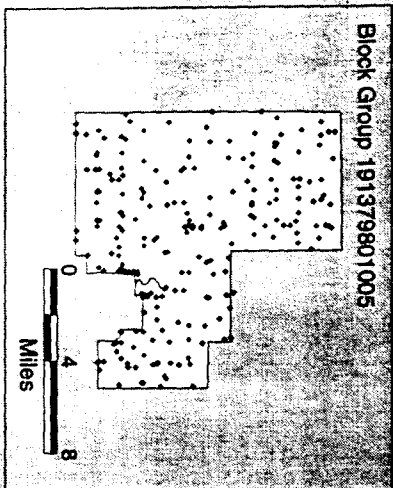
Block Group 190059605001

Miles

0   4   8
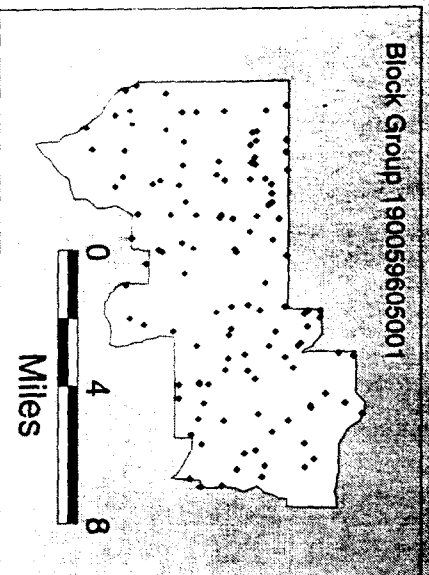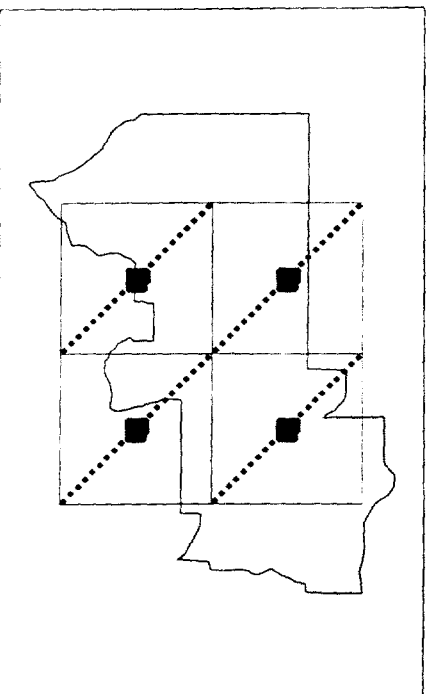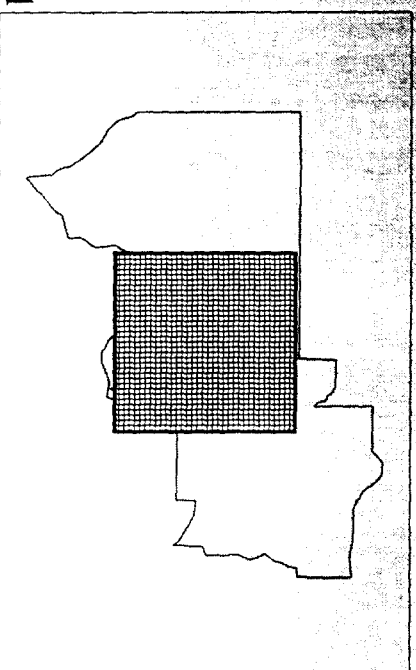
Satellite

BCPM1.1

Hatfield

BCPM2

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BCPM2

Examples of Customer Location Mapping by Models

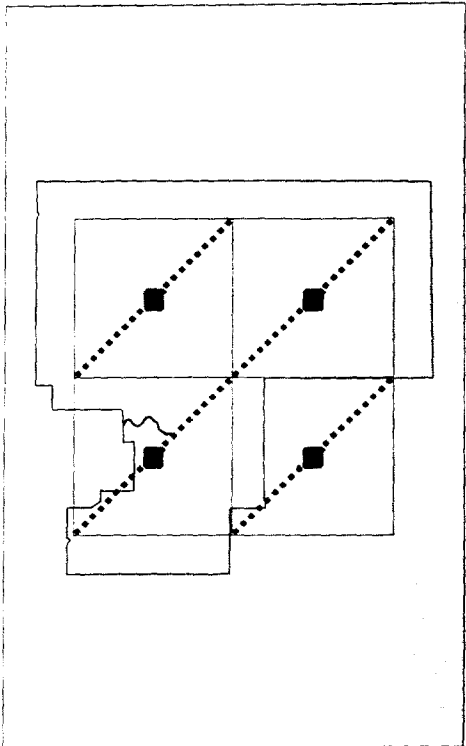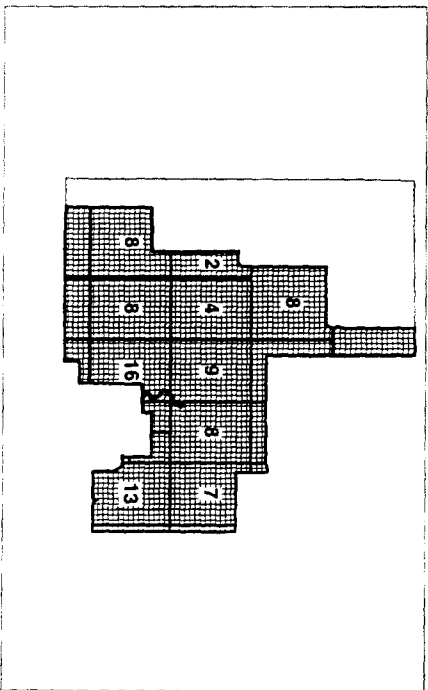Block Group 191379801005

Miles
0   4   8

Satellite

BCPM1.1

Hatfield

BCPM2

8 2
8 4 8
16 9
8
13 7

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BCPM2

Enhancements: BCPM to BCPM2 Expense Module Changes

- Previously, all expenses calculated on per-line basis.

- Issue: This approach can distort by either...

    -applying too much plant-related expense in dense areas, or

    -applying expenses where they are actually not incurred (e.g. aerial metallic expense)

- Solution: Allow user to determine when expenses are applied "per investment category", "per line", or combination of both.

- Average Costs unaffected, cost distribution changes.